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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,244	02/15/2002	Hiroyuki Nakano	501.41175X00	7857
20457	7590	11/18/2004		
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889				
EXAMINER PADGETT, MARIANNE L				
ART UNIT		PAPER NUMBER		
1762				

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,244

Applicant(s)

NAKANO ET AL.

Examiner

Marianne L. Padgett

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/24/04 & 4/5/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 19-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. Applicant's amendments have corrected 112 problems as set forth in section 2 of the application mailed 11/5/03, and considerably improved the clarity of the claims.

2. Claims 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, line 11, while the amendment makes changes so that the claim now reads "splitting light reflected..." is idiomatic and supported, the following phrasing of "one of the split light", in lines 15-16 is non-idiomatic, and the over all phrasing does not clarify what the light is split into. Would addition of --into at least 2 components-- after "window" in line 13, and alternate language of --one of the components of the split light-- provide intended and supported meaning? If so correspondingly changes would be needed in dependent claims.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. In order to simplify the prosecution, the previous primary reference to Nakada et al (JP 11-251252) is being dropped, as the Thomason/Derwent translations appear to show that the Nakano et al (JP 11-330053) is more relevant.

5. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al and Bennett et al (JP 03-147317 or US 5,367,139), in view of Katsuyama et al (JP 11-340196), as discussed in section of paper #9 mailed 11/5/03.

The translations of the Japanese references have been received and supplied, and while the phrasing, grammar and tenses employed by the machine translations makes reading them cumbersome, they provide reasonably understandable prose. In Nakano et al, particularly see claims, exemplified by 1 or 2, plus 4-5 or 6 for irradiation to produce signals that separate plasma luminescence from signals from floating "foreign-material", where a component called "noise" is removed from the floating material signal. On page 20 [0007-8], this noise component is revealed to comprise light scattered from the chamber walls, hence this suggests Nakano et al is separating this light component from light emitted by the plasma, however they differ from the claims by not necessarily using it to determine information on the state of contamination of the chamber walls. On page 19, Nakano et al recognize the problem that deposits on chamber wall result in exfoliation, which in turn results in the problem of floating particles, which their process is directly concerned with measuring and controlling in order to improve the yield of processed objects, such as semiconductor substrates. Also see [0009-10] on p. 21-23; the end of [0017] on

p. 32; [0021]; [0025] for beam splitters; [0027]; [0029-30] for using foreign matter signals to control processing decisions (cleaning); [0036]; and also note split paths in figure.

It would have been obvious to one of ordinary skill in the art, that in order to remove a noise component comprising scattered light from chamber walls from the floating foreign matter signal, that one would consequently have available that component which contains information on the state of the chamber walls, as they are recognized as a source of the floating matter. (Note, determining that exfoliating is occurring due to the presence of floating matter may be considered to read on obtaining information on the state of the chamber walls, i.e. that they are exfoliating. Thus given, previously discussed teachings of Bennett et al concerning cleaning of plasma chamber surfaces and removal of flake and particle matter, with teachings of use of light scattering to measure contamination inside chamber (col. 4-5), it would have remained obvious to one of ordinary skill as previously discussed to explicitly measure the wall contamination as well as presence floating matter in the plasma chamber, as Bennett et al suggest it in that they are cleaning the walls and venting particles, and Nakano et al. already recognize it as a component of their collected light data/signals. Katsuyama et al as shown by the translation thereof, as well as the previously discussed abstract, further supports this obviousness as it is also concerned with the problem of floating matter, exfoliation [0004, 0006-7] and the need to distinguish between foreign matter which floats and that which does not (wall contamination) in order to determine the state of the chamber [0011-12], [0017], [0021], [0034-36+], [0043-45], [0048], etc.

6. Applicant's arguments filed 6/24/04 plus 4/5/04, and discussed above have been fully considered but they are not persuasive.

Translations of reference cited in section 4 of paper #9 are supplied; noting that p.6-7 thereof for Kawasaki (57-118,6300) has discussion of particle detection using scattered light and beam splitters, as do the claims, p. 3+, p. 8+, figures (ref # 25 beam splitter), etc.

Copending cases with overlapping inventors of interest included USPN 6,355,570 B1; 6,576,559 B2; SN 10/376,274 and 10/231,267, which claim detecting foreign particles, but do not discuss wall detection/contamination, patents 6,613,588 B2 and 6,778,272 B2 have limitations to both wall and particle light reflection/detection, but at present appear to have differentiated procedures, such as plural lasers or specific processing (etching), which particle distribution detection, respectably. USPN 6,712,928 B2 is to detection apparatus, while 10/790,180 is to generic detecting of contaminants, but has specific electrode configurational features.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

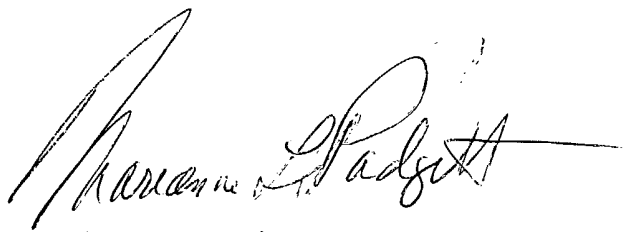
Art Unit: 1762

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on Monday-Friday from about 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. L. Padgett/af
September 29, 2004
October 20, 2004

A handwritten signature in black ink, appearing to read "Marianne Padgett", with a long horizontal flourish extending to the right.

MARIANNE PADGETT
PRIMARY EXAMINER